

REC'D 09 AUG 2005

PCT10/554351

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P435PC00	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2004/000664	International filing date (day/month/year) 29.04.2004	Priority date (day/month/year) 30.04.2003
International Patent Classification (IPC) or national classification and IPC F03D 3/02, F03D 3/04		
Applicant Oldin, Karin et al		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 23.11.2004	Date of completion of this report 14.07.2005	
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2004/000664

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☐ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 5 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1 - 2 received by this Authority on 23.11.2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 4 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2004/000664

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-10</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

The invention relates to a method of obtaining energy from a wind power plant and a wind power plant of the cyclone type.

The objects of the invention are to improve the power generation of of wind power plants in a way that results in a low investment cost as well as high reliability and low costs of maintenance.

These objects are achieved by means of the method of obtaining energy from a wind power plant stated in claim 1 and the wind power plant of the cyclone type stated in claim 5.

Cited documents:

D1: FR, A, 1 086 320
D2: US, A, 4 070 131
D3: FR, A1, 2 588 317
D4: DE, A1, 4 122 667
D5: EP, A2, 0 097 635

Each of D1-D4 respectively discloses wind power plants of the cyclone type comprising a base, a tower above the base and being open at the top and provided with a side inlet the wind to generate a cyclone in the tower. The tower is rotated during operation such that the wind inlet of the tower is maintained towards the wind. The wind power plant further comprises a substantially horizontal turbine having inlets through the base and outlet to the centre of the cyclone in the tower and being connected for driving a generator. The tower of the wind power plants described in D1-D3 are formed such that they have an elliptical shape in the horizontal plane.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V.

D5 discloses a device for producing heat energy and simultaneously auto-regulating the speed of a windmill or wind-turbine, which comprises a water brake mounted on the rotating shaft of the windmill or the wind-turbine .

The method of obtaining energy from a wind power plant stated in claim 1 and the wind power plant of the cyclone type stated in claim 5 differs from prior art disclosed in each of D1-D5 respectively by the features stated in the characterising parts.

It is not considered as common practice to a person ordinary skilled in the art to use knowledge disclosed in each of D1-D5 respectively and thus arrive at the method stated in claim 1 and the wind power plant of the cyclone type stated in claim 5. Claims 1 and 5 therefore fulfil the requirements of inventive step according to Article 33(3).

Claims 1 and 5 also fulfil the requirements of industrial applicability according to Article 33(4).

Claims 2-4 and 6-10 disclose further features of the invention, which fulfil the requirements of patentability stated in the paragraphs (2-4) of Article 33.

Amended Claims

1. A method of obtaining energy from a wind power plant comprising a generator-driving turbine (19) with an axis (24) parallel to the tower, whereby a cyclone is generated in the tower (12) open at the top and provided with a side inlet (13) for the wind so that the low-pressure region in the center of the cyclone generates the driving force for the air flow through the turbine, the tower (12) being rotated during operation such that the wind inlet (13) of the tower is maintained towards the wind, **characterized in** that the tower (12) is maintained in a leaning position to the vertical in a direction parallel to the direction of the wind such that the cross-section of the tower forms an elliptical shape in the horizontal plane substantially along the entire tower length, the centre of the ellipse being positioned substantially at said axis (24).

2. The method according to claim 1, **characterized in** that the tower (12) is maintained leaning at 10-30 degrees to the vertical.

3. The method according to any of previous claims, **characterized in** that the tower (12) is maintained leaning to the vertical in a direction coinciding with the direction of the wind.

4. The method according to any of previous claims, **characterized in** that the air is provided to a venturi-shaped inlet (21) through a plurality of helical channels (22) in a base (11) of the wind power plant.

5. A wind power plant of cyclone type comprising a base (11), a tower (12) arranged above the base and being open at the top and provided with a side inlet (13) for the wind to generate a cyclone in the tower, a substantially horizontal turbine (19) having inlets (21, 22) through the base and outlet to the center of the cyclone in the tower and being connected for driving a generator (16) arranged in the base, **characterized in** that the tower (12) is formed such that the cross-section of the tower forms an elliptical shape in the horizontal plane substantially along the entire tower length, the centre of the ellipse being positioned substantially at the tower axis (24).

6. The wind power plant according to claim 5, **characterized in** that said elliptical shape is formed by the tower having a circular cross section and leaning to the vertical in a direction parallel to the direction of the wind.

5 7. The wind power plant according to claim 6, **characterized in** that the tower (12) is leaning at 10-30 degrees to the vertical, preferably in a direction coinciding with the direction of the wind.

10 8. The wind power plant according to claim 5; **characterized in** that the tower (12) is vertical and has an elliptical cross section.

15 9. The wind power plant according to any of previous claims 5-8, **characterized in** that the tower (12) comprises a rotor (23) with blades (28) and a shaft (24) parallel and coaxial to the tower which is connected to the shaft (20) of the turbine by means of a freewheel coupling (25).

10. The wind power plant according to claim 9, **characterized in** that the rotor shaft (24) is arranged for driving a water brake (27) for heating up water.

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AMENDED SHEET